Global Journal of Economics and Business (GJEB)

Volume.11, Issue.1, pp: 132-142 Article 10
Aug (2021)

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(The roles of anxiety, prevention–focus, self–efficacy, and airlines' communication)

Fethi Klabi
Ph.D., King Khalid University, Saudi Arabia
fssaleh@kku.edu.sa

Received: 13/7/2021 **Revised: 23/8/2021** **Accepted: 28/8/2021**

DOI: https://doi.org/10.31559/GJEB2021.11.1.10

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Global Journal of Economics and Business (GJEB)

Journal Homepage: https://www.refaad.com/views/GJEB/home.aspx

ISSN: 2519-9293(Online) 2519-9285 (Print)

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Abstract: Civil aviation is one of the sectors most affected by the Covid 19 pandemic. Due to the lack of marketing research in the Arab world on this topic, this study examined the causal and moderating relationships between Covid-19 anxiety, prevention focus, self-efficacy, information about Covid-19, and intention to travel by air. Data were collected via an electronic survey from a convenience sample of 515 Saudis. A structural equation modeling analysis showed that prevention focus had an influence on Covid-19 anxiety, which in turn had a negative impact on intention to travel by air. A multigroup analysis was also conducted. The results confirmed that the effect of Covid-19 anxiety on air travel intention is stronger when individuals have low levels of self-efficacy. Several theoretical implications and recommendations for management are discussed.

Keywords: *Covid-19 anxiety; prevention focus; self-efficacy; intention to travel by air; airlines; Saudi Arabia.*

1. Introduction

Covid-19 has disrupted all sectors of the economy worldwide (Barbieri, *et al.*, 2020). On the supply side, the pandemic has caused business closures and a significant drop in productivity, and social distancing has disrupted supply chains. On the demand side, the loss of income for some consumers and the gloomy social atmosphere have led to a loss of purchasing power. Today, no country in the world, regardless of its economic strength, has been spared (Chudik *et al.*, 2020).

Mobility increases the spread of infectious diseases and health risks for individuals (de Bruin *et al.*, 2020; Funk *et al.*, 2010; Peixoto *et al.*, 2020; Rizzo *et al.*, 2014). As a result, countries have implemented restrictive policies on travel, especially air travel. Consequently, the travel industry is one of the sectors most affected by the pandemic with fewer flights, empty airports, and job losses (Abdullah *et al.*, 2020; Iacus *et al.*, 2020; Truong and Truong, 2021; Zhang *et al.*, 2021). A recent report shows a 60% decline in global seat supply and a 2,699 million decline in passenger numbers between 2019 and 2020, with airlines reporting a loss of approximately $371 billion in gross passenger operating revenue in 2020 (OACI, 2020). Travel restrictions combined with increased costs for airlines (disinfection, temperature control, fewer seats on planes) do not suggest an improvement in the industry in the short to medium term (OECD, 2020).

Although aviation is a small part of the world economy (about 0.3% of the value added of OECD countries), it is linked to other sectors such as aircraft manufacturing and oil refining (OECD, 2020). In Saudi Arabia, the aviation industry is an important factor for the economy. According to a report by IATA (2017), this sector generates 138,000 direct jobs and 456,000 indirect jobs with a total gross value added of $36.4 billion. Air transport and tourism together contribute to 5.6% of GDP (Gross Domestic Product).

Airlines connect Saudi Arabia to the rest of the world, benefiting travelers and enabling the flow of goods, investments, and ideas. Since the first Covid 19 cases were reported on Saudi Arabia in March 2020, authorities imposed an entry ban on foreigners from the 25 countries where infections were found. International flights were halted from March 25 and domestic flights from March 21. Considering that this country is an active tourist destination in Middle East and receives more than 2 million pilgrims annually, such decisions were inevitable

regardless of the economic consequences (Algaissi *et al.*, 2020). The suspension affects airlines as well as airport operators and businesses at airports such as restaurants and aircraft manufacturers. The International Air Transport Association (IATA) assessed the economic impact of the pandemic in terms of job losses, airline-generated spending, trade flows and tourism. They estimated $7.2 billion in lost revenue at Saudi Arabia in 2020. (Caline, 2020).

The Covid 19 pandemic is not going away anytime soon, and other pandemics are likely to hit the world with greater health, economic, and social impacts. Several studies have examined traveler behaviour in different countries such as the Netherlands (de Haas *et al.*, 2020), the United States (Shamshiripour *et al.*, 2020; Truong and Truong, 2021), the United States and Denmark (Zenker *et al.*, 2021), Turkey (Shakibaei *et al.*, 2021), Japan (Hara, Y & Yamaguchi, H, 2021), and China (Zheng *et al.*, 2021). Others have extended their studies to different countries (Abdullah *et al.*, 2020; Zenker *et al.*, 2021; Barbieri *et al.*, 2020).

Few studies have examined the impact of Covid-19 on airline ticket purchases (Bulchand Gidumal and Melián González, 2020). Moreover, to the best of the authors' knowledge, there are no studies that have investigated the impact of Covid-19 on airlines from a consumer behavior perspective. To fill these gaps and knowing the economic and social impact that this pandemic has caused in Saudi Arabia and around the world, this research is interested in the behavior of Saudis regarding air travel. The problem of this research could be formulated as follows: *What are the factors that influence Saudis' intention to travel by airlines in the context of the Covid 19 pandemic?*

Two categories of factors were examined. The first category relates to Covid-19 anxiety, prevention focus, and self-efficacy (Zenker *et al.*, 2021; Zheng *et al.*, 2021). The second category of factors relates to airline communication strategies during Covid-19 crises. The results of this study will allow understanding the mechanisms underlying travelers' behaviors and the appropriate way to overcome their fears. From a management perspective, the results would help airlines understand their customers and present the appropriate strategies to manage the Covid- 19 crisis or other upcoming health crises with the least losses. With the expected resumption of air travel for Saudi citizens in May 2021, it would be interesting to know their willingness to travel by air in the context of Covi-19. This research is the first in Saudi Arabia and the Arab world to examine the impact of Covid-19 on airlines from a marketing perspective. The results are based on data from a convenience sample of 515 Saudis over the age of 18. An electronic questionnaire was administered and various analyzes were conducted on SPSS and Lisrel.

2. Literature review and Hypothesis development

2.1. Covid-19 anxiety and the intention to travel by air:

Anxiety is defined as an emotion characterized by feelings of tension, anxious thoughts, and physical changes such as increased blood pressure or rapid heartbeat (Major et al., 2000). It is an emotional response to stress and fear of negative consequences (Hammer et al., 1998). Anxious people usually have recurrent intrusive thoughts and worries, and they avoid certain situations due to worry and uncertainty (Dowling and Staelin, 1994; Major et al., 2000). They exhibit stress, vulnerability, discomfort, anxiety, panic, frustration, and awkwardness (McIntyre and Roggenbuck, 1998; Hullett and Witte, 2001). Anxiety has a negative impact on mental health in people with severe psychiatric symptoms, which can inhibit physical activity, cause sleep disturbances, and increase drug and alcohol use (Arpaci et al., 2020; Duarte et al., 2020; Toprak Celenay et al., 2020).

Anxiety is a psychological disorder that includes cognitive, behavioral, emotional, and psychological dimensions. It refers to the anticipation of a future concern and warns individuals of danger (Parekh, 2017). Anxiety is a cognitive response to a situation that appears difficult, challenging, and threatening (Sarason, 1978). This study does not aim to shed light on fear of air travel or aviophobia (Hodges et al., 1996; Wang and Cole, 2013). The focus is on the fear of contracting diseases during air travel and, in our case, the fear of Covid-19. Coronaphobia or Covid-19 anxiety is diagnosed with somatic symptoms (abdominal pain, sweating, trembling, feeling weak, dizziness, shortness of breath) and cognitive modalities such as thoughts, worries, and fears (Asmundson and Taylor, 2020; Nousi et al., 2008).

Intention to travel by air reflects the desire to travel by air. Risk and safety are associated with anxiety. They are important factors that influence the decision-making process in this regard. When the risk is considered high, individuals may cancel or report their flights if they hope the danger will disappear (Beerli and Martin, 2004; Sönmez and Graefe, 1998). Luo and Lam (2020) showed that travel anxiety, which is a function of Covid-19 anxiety, influences travel intention. Das and Tiwari (2020) examined travel intentions of domestic and international flights during Covid-19 and confirmed that perceived severity of Covid-19 influences travel intentions only for international flights.

A Coronavirus Anxiety Scale (CAS, Lee, S. A, 2020) was developed and confirmed in many countries such as Bangladesh (Ahmed et al., 2020), Turkey (Evren et al., 2020), and Brazil (Padovan-Neto et al., 2021). This study adapted the Pandemic Anxiety Travel Scale (PATS) of Zenker et al. (2021). This five-item scale refers to the cognitive modalities of coronaphobia (discomfort, nervousness, and fear of death) and to travel planning. It has

been shown to be reliable in two different countries (USA and Denmark) that were at different stages of the pandemic. The results of Zenker et al. (2021) showed that PATS was predictive of travel intention. In this study, this scale was adapted to air travel and the following hypothesis was made:

H1: PATS would decrease intention to travel by air (IT).

2.2. Airlines' information on Covid-19 and intention to travel by air:

Travel intentions are influenced by two categories of factors: personal factors and information sources. In addition to fear, anxiety, and risk perception, sources of information are also cited as important factors influencing travel decisions. According to some views, information sources are rated as more important than personal factors. For this study, we hypothesized that evaluating information about airline preventive measures against the spread of the pandemic and for traveller safety could be a factor that reduces PATS and increases intention to travel by air. Accordingly, the hypotheses are as follows:

H2: Assessing information about airlines' preventive measures against the spread of Covid-19 (Info) would decrease PATS.

H3: Assessing information about airlines' preventive measures against the spread of Covid-19 (info) would increase intention to travel by air (IT).

2.3. The relationships between prevention focus, self-efficacy, PATS and intention to travel by air:

Prevention focus is a tendency to constantly look out for danger, avoid unpleasant and threatening situations, and satisfy basic safety needs (De Cremer et al., 2009; Higgins et al., 2001; Zenker et al., 2021; Zhao and Pechmann, 2007). Previous studies found that prevention focus was negatively associated with risk taking (Hamstra et al., 2011; Yeo and Park, 2006). According to Zenker et al. (2021), prevention focus has a positive influence on PATS and a negative influence on travel intention. This leads to the following hypothesis:

H4: Prevention focus (PF) would increase PATS.

H5: Prevention focus (PF) would decrease air travel intention (IT).

The term self-efficacy was originally introduced by Albert Bandura, a psychologist (Canadian American) who defined it as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives". It is the belief that a person can control and surpass threats (Bandura, 2010, p. 1). People with high levels of self-efficacy cope with threatening situations with an assurance that reduces stress and decreases their vulnerability to failure. Self-efficacy is a key factor in reducing anxiety when people find themselves in stressful situations. The higher the sense of self-efficacy, the higher the effort and perseverance individuals show when faced with obstacles. Zheng et al. (2021) showed that self-efficacy increases tourists' protective motivation against Covid-19. Given this, we hypothesize that the effect of PATS on air travel intention is greater when individuals have a low sense of self-efficacy. Accordingly, the following hypothesis is proposed:

H6: Self-efficacy (SE) moderates the effect of PATS on intention to travel by air (IT). The effect of PATS on IT would be greater in the case of low SE than in the case of high SE.

Figure 1 shows the final framework and hypotheses of the research.

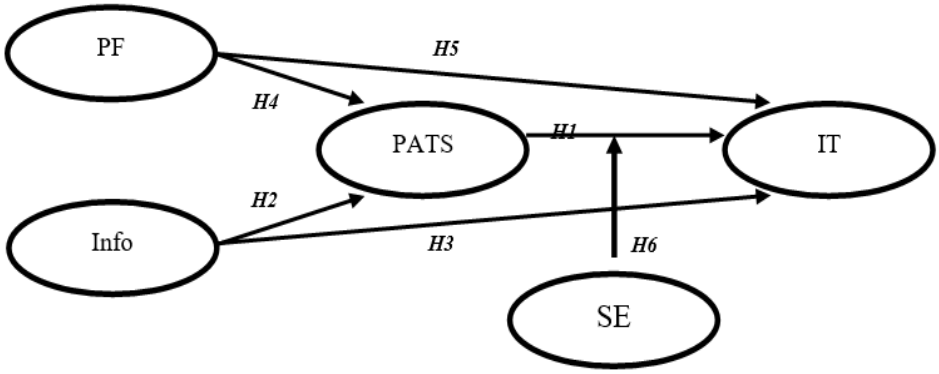

Figure (1): The framework and Research Hypotheses

3. Methodology

3.1. Convenience sampling, data collection and measures:

The study population consisted of Saudi citizens over 18 years of age. An electronic questionnaire was sent to a convenience sample in February 2021 via Google Forms and 515 respondents completed the survey. Table 1 shows the profile of the respondents. According to the results, the number of male respondents is much larger than that of female respondents. On the other hand, the distribution by age is more balanced. 75.3% of the

respondents have higher education (high school or master and above). Regarding chronic diseases, most of the subjects (83.1%) had nothing to report.

To assess the variables, we adapted measurement scales from previous studies. For Covid-19 anxiety, we used the PATS (Pandemic Covid -19 Anxiety Travel Scale) with 5 items and travel intention (3 items) from Zenker et al. (2021), changing "traveling" to "traveling by air". Prevention focus (3 items) is also adapted from Zenker et al., (2021). Self-efficacy (4 items) was adapted from Zheng et al., (2021). All items were measured on a five-point Likert scale ranging from 1: "strongly disagree" to 5: "strongly agree." We measured respondents' ratings of the information provided by airlines about covid-19 (info) on a five-point scale (from 1: poor to 5: excellent) with the unique question, "*How is the information provided by airlines about preventive measures against Covid-19 ?*"

Table (1): Profile of respondents

Variable	Categories	n	%
Gender	Male	361	70.1
	Female	154	29.9
Age	18-24	159	30.9
	25-34	202	39.2
	35+	154	29.9
Education	Less than high school	127	24.7
	High school	337	65.4
	Master's degree and higher	51	9.9
Chronic illnesses	Yes	87	16.9
	No	428	83.1

3.2. Factor Analysis results:

Before each analysis, kurtosis and skewness values were calculated for all items and showed that they were close to zero, indicating that all variables were normally distributed. Factor analysis was performed using varimax rotation. We introduced the items that originally reflected PATS, intention to travel by air (IT), prevention focus (PF), and self-efficacy (SE). The index of Kaiser-Meyer-Olkin (KMO) was 0.777 and Bartlett's test for sphericity was significant at p= 0.000. Then, factor analysis was judged to be useful for the data (Kaiser, 1974; Yong and Pearce, 2013). A four-factor solution was extracted that explained 65.3% of the total variance. All factors yielded eigenvalues above 1 and all items loaded satisfactorily on their respective factors.

The first factor represented the adjusted scale of PATS and consisted of five items. When the item labeled PATS5 was removed from the measurement scale, Cronbach's alpha increased from 0.880 to 0.892. Four items were then retained for PATS. The second factor related to intention to travel by air. When IT3 was eliminated, Cronbach's alpha increased from 0.703 to 0.710, and the scale with two of the items IT1 and IT2 was then confirmed. The third factor reflected prevention focus (PF) with three items. The corresponding Cronbach's alpha was 0.778. The factor representing self-efficacy (SE) consisted of four items with a value of Cronbach's alpha of 0.747. For all constructs, the values of Joreskoeg's Rho (composite reliability) and average variance extracted (AVE) were above the corresponding thresholds (0.7 and 0.5). The convergent validity of all constructs was thus confirmed (Table 2).

Table (2): Factor loadings, convergent reliability and discriminant validity

Construct	Item label	Loading	Cronbach's Alpha >=0.7 (Peterson, 1994)	Joreskög's Rho >=0.7	Average Variance Extracted (AVE) >= 0.5	AVE > The highest squared correlation with another construct.
				(Fornell and Larcker, 1981; Henseler *et al.*, 2015)		(Fornell and Larcker, 1981)
PATS	PATS1	0.890	0.892	0.919	0.740	0.740 > 0.097
	PATS2	0.836				
	PATS3	0.860				
	PATS4	0.853				
IT	IT1	0.629	0.710	0.719	0.567	0.567 > 0.106
	IT2	0.859				
PF	PF1	0.755	0.778	0.847	0.650	0.650 > 0.097
	PF2	0.854				
	PF3	0.806				
SE	SE1	0.692	0.747	0.835	0.560	0.560 > 0.106
	SE2	0.781				
	SE3	0.804				
	SE4	0.711				

Discriminant validity is confirmed when the AVE for each construct is higher than the highest squared correlation of the construct with any of the other constructs. This condition was met for all four constructs (PATS,

IT, PF and SE). Furthermore, the criterion Heterotraite-Monotrait Ratio Inference (HTMT) was used (Henseler et al., 2015).

Table (3): Discriminant validity using the HTMT criterion

	PATS	IT	PF	SE
PATS	---			
IT	0.31	---		
PF	0.37	0.03	---	
SE	0.01	0.50	0.10	---

The figures in Table 3 showed that the values of HTMT ratio were all less than 0.85, which confirmed the discriminant validity of the four constructs in the study (Kline, 2015).

3.3. Confirmatory factor Analysis:

Confirmatory factor analysis (CFA) is an important tool for validating measurement models (Hair et al., 2012). The theoretical framework was constructed with five constructs, namely PATS (4 items), IT (2 items), SE (4 items), PF (3 items), and Info (1 item). All the indices indicated a good fit of the model to the data: GFI (Goodness of fit Index) equal to 0.96; CFI (Comparative Fit Index) equal to 0.97 and thus greater than the corresponding critical value (0.90). The Standardized RMR was 0.030 (less than 0.080). The Root Mean Square Error of Approximation (RMSEA) was less than 0.080 (0.047) and the normed $\chi 2$ was less than 5 (2.14) (Hooper et al., 2008; Hu and Bentler, 1999; Kline, 2015).

3.4. Descriptive analysis:

Independent samples t-test showed that the mean scores of PATS, IT, and SE did not differ significantly between male and female groups. On the contrary, male subjects reported higher PF (m=2.93) compared to female subjects (m=2.72), as shown in Figure 2.1. This mean difference is significant at p=0.05 (t=2.263, p=0.024 with the violation of the assumption of homogeneity of variance). This result is inconsistent with others who estimate that women are more prevention-oriented than men (Maass et al., 2008). The same analysis found that healthy subjects expressed higher SE compared to those with chronic diseases (t=3.227, p=0.01 with the assumption of homogeneity of variance) (Figure 2.2). This result complements that of Lau-Walker (2004), who found that illness perceptions in patients reduce their self-efficacy.

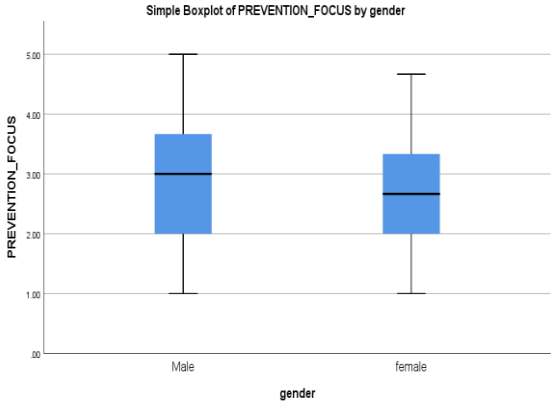

Figure 2.1

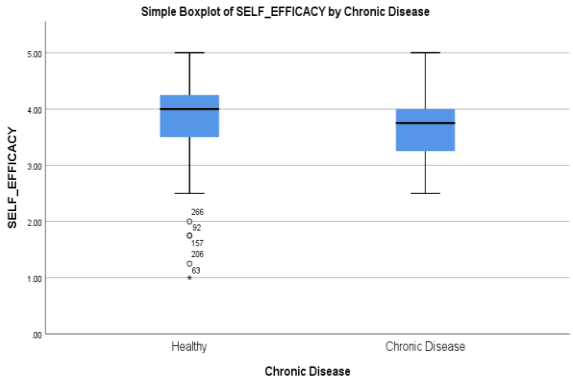

Figure 2.2

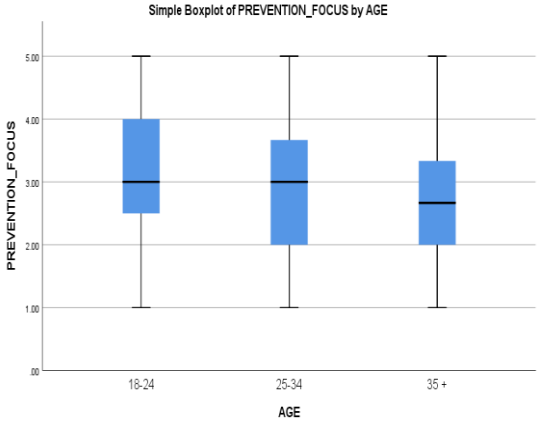

Figure 2.3

Figure (1): Significant differences

Results from ANOVA showed that the mean scores of PATS, IT, and SE did not differ between age groups (Heiberger and Neuwirth, 2012). For PF, knowing that the assumption of homogeneity of variance was not confirmed, we used Tamhane, Dunnett T3, Games-Howell, and Dunett C tests. The results showed that individuals aged 18-24 were more prevention oriented (m=3.07) than individuals aged 35+ (m=2.66) with a p-value equal to 0 (Figure 2.3). This result contradicts the findings of Heckhausen et al. (1989) and Staudinger et al. (2003) who confirmed that older individuals have more loss-avoidance goals than young adults. In terms of education, the figures showed no differences between the groups at PATS, IT, SE, and PF.

3.5. Hypothesis testing:

Structural equation modeling is used to analyze structural relationships and test hypotheses (Anderson and Gerbing, 1988). We used this technique in Lisrel to evaluate the relationships between PATS, PF, SE, info , and IT. All indices confirmed that the model was consistent with the data: RMSEA = 0.045, Normed $\chi 2 = 2.03$, CFI =0.99, GFI=0.98, and SRMR=0.024. The results of the hypothesis tests (H1, H2, H3, H4 and H5) are presented below:

- ***H1:*** *H1* assumed that Covid-19 anxiety (PATS) exerts a negative influence on intention to travel by air ($\beta = -0.36$, t= -7.27, $p<0.01$). This hypothesis was confirmed, and this result combines the findings of Zenker *et al.* (2021) and Luo and Lam (2020). The standardized coefficient is closer to those of these studies (-0.210 and -0.312, respectively).
- ***H2:*** The results negate the effect of evaluating the information provided by the airlines on the measures against Covid-19 on PATS, as the corresponding standard coefficient is not significant ($\beta = 0.06$, t= 1.52, $p> 0.05$). *H2* is rejected accordingly. Negative emotions towards the Covid-19 pandemic cannot be mitigated by the efforts undertaken and communicated by airlines to combat Covid-19 disease.
- ***H3:*** The predictive power of the information on IT was also not confirmed at p= 0.05 ($\beta = 0.07$, t= 1.83, $p>0.05$). Then, *H3 is not confirmed*.
- ***H4:*** The effect of prevention focus (PF) on PATS was supported by the analysis ($\beta = 0.41$, t= 7.51, $p<0.01$). *H4* is thus confirmed. This result supports the idea that prevention focus is associated with vigilance and anxiety (De Cremer *et al.*, 2009; Higgins *et al.*, 2001). Zenker *et al.* (2021) also confirmed the association between PF and PATS with a standardized coefficient of 0.311.
- ***H5:*** *H5* is rejected because the effect of PF on IT could not be statistically confirmed ($\beta = 0.08$, t= 1.72, $p> 0.05$). Accordingly, intention to travel by air is not a function of people's general tendency to avoid danger, but of their specific fear of contracting Covid-19.

Table 4 summarizes the results of the hypothesis tests.

Table (4): Direct paths for the structural model and hypothesis testing

Hypothesis	Path		Standard coefficient	*t-value*	*p-value*	Result
	From	To				
H1	**PATS**	**IT**	-0.36	-7.27	p<0.01	Confirmed
H2	**Info**	**PATS**	0.06	1.52	p>0.05	Rejected
H3	**Info**	**IT**	0.07	1.83	p>0.05	Rejected
H4	**PF**	**PATS**	0.41	7.51	p<0.01	Confirmed
H5	**PF**	**IT**	0.08	1.72	p>0.05	Rejected

3.6. Testing the moderation of SE in the relationship between PATS and IT (*H6*):

To test *H6*, we used a structural invariance analysis. To perform a structural invariance technique, a measurement invariance analysis is a prerequisite. Without such an analysis, the results of a structural invariance analysis are meaningless (Steenkamp and Baumgartner, 1998). Measurement invariance is confirmed when an instrument measure the same construct in the same way across subgroups of respondents (Vandenberg,2002). To achieve this, we used a statistical technique, namely "*multigroup confirmatory factor analysis*" on Lisrel (Milfont and Fischer, 2010). First, we divided the sample into two groups of SE using the K-clustering method. The high SE group consisted of 377 individuals (m=4.11). The low SE group consisted of 116 individuals (m=2.86). On Lisrel, the measurement model including PATS and IT provided an adequate fit to the data for both high and low SE groups (Table 5).

Table (5): Goodness of fit indices for both groups of high and low SE

Goodness of fit indices	χ^2(*d.f*)	χ^2/*d.f*	NFI	CFI	GFI	SRMR	RMSEA
High SE	4.91(3)	1.63	0.99	0.99	0.98	0.015	0.043
Low SE	5.69(3)	1.89	0.99	0.99	0.98	0.018	0.088

The test of measurement invariance was performed in three steps (Table 6). In the first step, the baseline model (Model 1) was measured, with all parameters freely estimated in both groups. Model 1 yielded a $\chi 2$ of 12.71 with a *d.f* of 6. The second step is to test for metric invariance (Model 2). Metric invariance is tested by requiring the factor loadings to be equal in the high and low SE groups (Horn and McArdle, 1992). Given the

results, there is no significant deterioration in fit compared to Model 1 ($\Delta \chi 2 = 1.32$ with Δ *d.f* = 3, p= 0.724). In the third step, we constrained the factor loadings and error variance of the items to be equal (residual invariance). Residual variance is the proportion of item variance that is not shared with the factor. The results showed that the scale items measured the latent variables with the same level of measurement error (Cheung and Rensvold, 2002). Compared to Model 2, Model 3 showed a non-significant difference in $\chi 2$ at p=0.05 ($\Delta \chi 2 = 4.83$ at Δ *d.f* = 2, p=0.089).

Table (6): Multigroup analysis: testing measurement invariance between groups with high and low SE

Measurement model	χ^2	*d.f*	$\Delta \chi^2$	Δ *d.f*	*p* for $\Delta \chi^2$ test	RMSEA
Model 1: baseline model (unconstrained)	12.71	6	--	--	--	0.070
Model 2: factor loadings constrained to be equal	14.03	9	1.32	3	p>0.05	0.050
Model 3: factor loadings and error variance constrained to be equal	18.86	11	4.83	2	p>0.05	0.056

After confirming the measurement invariance of the overall model, we tested *H6* by estimating whether the effect of PATS on IT differed between the two high and low SE groups (Table 7). *H6* assumed that the effect of PATS on IT will be more significant when respondents express a low SE compared to those with a high SE. The model in which we constrained PATS -IT was tested against the model in which the value of this pathway was freely estimated across the SE groups. The $\chi 2$-difference test between the two models was significant (p=0.0455). The results showed that when respondents expressed low SE, the effect of PATS on IT was equal to -0.70 (t=-6.33, p< 0.05). This effect weakened for the high SE group (β = -0.32, t=-3.54, p< 0.05). Accordingly, we confirm *H6*.

Table (7): Structural invariance analysis

Path	High SE		Low SE		Baseline model χ^2 (*d.f*)	Nested Model χ^2 (*d.f*)	*p* for $\Delta \chi^2$ test
	B	*t*	β	*t*			
PATS >> IT	-0.32	-3.54	-0.70	-6.33	16.65(10)	18.75(11)	*p<0.05*

4. Discussion

This study makes some important contributions to the travel literature. It emphasized the factors that might influence Saudis' intention to travel by air in the context of the Covid 19 pandemic. The results provide insight into travelers' response to the progression of Covid-19 in the coming months. Most importantly, these results could be extended to other cases of future pandemics and allow modeling of intent to travel by air as a function of multiple factors.

The results from SEM showed that only Covid-19 anxiety, represented by PATS, exerted a negative influence on intention to travel by air (IT) and explained 10% of its variation. This result is consistent with the findings of previous studies, such as Das and Tiwari (2020), and sheds light on the influence of Covid-19 anxiety on people's mobility. Surprisingly, intention to travel by air is not associated with prevention focus (PF), as previously found by Zenker et al. (2021). PF is a general tendency to avoid situations perceived as dangerous or unpleasant (Higgins et al., 2001). The insignificance of the effect of PF on IT can be explained by the fact that, in our case, willingness to travel by air remains associated only with fear of Covid-19.

Anxiety is associated with a range of behavioral and psychological responses that include avoidance and vigilance. In the case of this study, fear of Covid-19 anxiety can be of two types. The first is a contextual or state anxiety associated with Covid-19. The second is a trait anxiety, which is described by a long-term tendency to develop anxiety responses (Gross and Hen, 2004). According to our results, Covid-19 anxiety is influenced by PF (β = 0.41, p< 0.01). We believe that PF primarily feeds state anxiety, which in turn influences the intention to travel by air. These negative emotions and tendencies are genetic in origin and the result of abnormal psychological development in individuals.

The evaluation of the information that individuals receive from the airlines on Covid-19 does not affect either PATS or IT. Thus, we can conclude that individuals' perceptions of the pandemic and behavioral responses to air travel are related only to personal factors. This can be explained by a kind of saturation towards communication about Covid-19 among travelers.

After multigroup analyzes, we confirmed the moderating role of SE for the effect of PATS on IT. The PATS -IT relationship was stronger among individuals exhibiting low levels of SE (β = -0.70) than among individuals exhibiting high levels of SE (β = -0.32). This result confirms that individuals who show a propensity for self-control are less prone to Covid-19 anxiety when planning air travel. To the best of the author's knowledge, this study is the first to examine the moderation of self-efficacy (SE) in the relationship between Covid-19 anxiety (PATS) and intention to travel by air (IT). The results could be extended to the effects of all forms of anxiety on intention to travel by air.

5. Managerial implications

Covid-19 has led to fear reactions and aversion to mobility around the world. The impact of such a pandemic is unprecedented, and there is no end in sight to the economic and social crisis it has triggered, despite the start of vaccination campaigns. Civil aviation is one of the sectors most affected by the Covid 19 crisis. Little research in the Arab world has examined the behavior of air travelers in the face of Covid-19. To fill this gap, this study examined factors that might influence intention to travel by air. Marketing and psychological perspectives were adopted.

SEM and multi-group analyzes provided valuable insights into factors influencing Saudis' intention to travel by air. Covid-19 anxiety is a key factor in the decision to travel by air. Individuals who feel anxious about Covid-19 show a lower willingness to travel by air. Therefore, both airlines and government agencies need to develop a strategy to reduce this anxiety. They need to take the necessary preventive measures to make people feel safe at the airport and during air travel. Temperature screening and Covid-19 testing will prevent affected people from boarding and help reduce transmission of the virus. Physical distancing on airplanes, hand sanitization, contactless self-service technology, and air filtration are also important measures to stop the spread of Covid-19 and reassure travelers (Bielecki et al., 2020; Graham et al., 2020).

Results showed that information about measures against Covid-19 did not reduce anxiety or increase intention to travel by air. However, airlines could be innovative in terms of communication and use a style that reduces traveler anxiety. Videos on mass media and social media to show preventive measures against the virus on the airplane. Airlines should post electronic brochures on their websites describing measures to protect travelers from the virus.

Because prevention focus is known to increase Covid 19 anxiety, studies should be conducted to identify the propensity of people with high prevention focus. Airlines could use psychologists to address motivation for hazard avoidance among these individuals. To this end, emails and text messages could be sent to highlight safety concerns. For loyalty program members and major customers, group sessions could be considered in this regard.

According to the results, the higher the level of SE, the lower the effect of PATS on IT. Airlines may consider SE as a criterion for market segmentation. People with a high level of SE can be used as influencers on airline websites or social networks. Their role is to reassure people who are most vulnerable to the virus with messages such as "*I could perfectly take preventive measures to protect myself from being infected with Covid-19*" or "*Taking action against Covid-19 is too easy*". Special attention should also be paid to people with chronic diseases. In fact, our results showed that this category of clientele suffers from a lack of self-efficacy.

6. Limitations and future directions

This study is not without limitations. First, the data were collected primarily through an electronic survey of residents of the southwestern region of Saudi Arabia, which may limit the generalizability of the results. Second, the study examined the relationships of PATS, PF, SE, info to IT, excluding other potential variables that might influence IT, such as cultural values, risk perception, and travel avoidance. Third, it is likely that respondents' perceptions of our variables may change rapidly depending on whether the number of infected persons increases or decreases or whether vaccination campaigns progress.

Future research could use qualitative studies (e.g., face-to-face interviews) to illuminate psychological, emotional, and cognitive barriers to travel during a pandemic. In addition, further studies could examine causal relationships between constructs such as travel anxiety or subjective norm in other countries and during different phases of the disease process. Longitudinal studies could be conducted as a function of the lifting of all restrictions and the resumption of flights.

Acknowledgments: The authors extend their appreciation to the Deanship of Scientific Research at King Khalid University for funding their work through the Research Group Program under grant number R.G.P.1/342/42.
This work has no conflict of interest

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